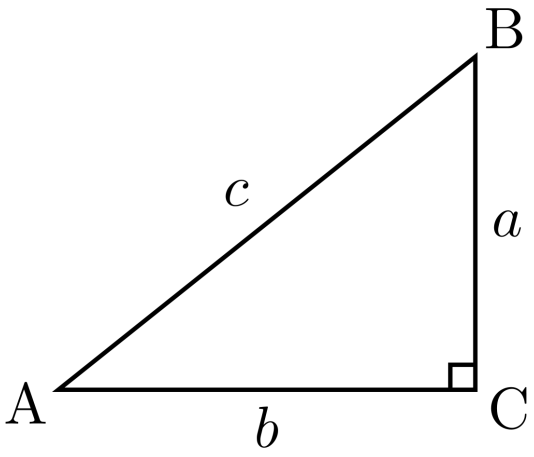
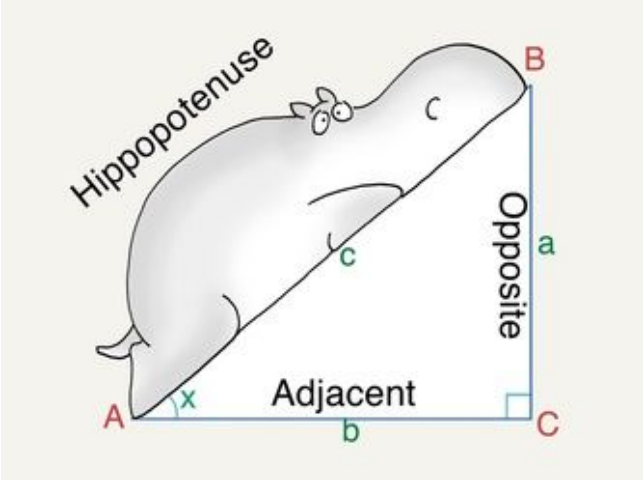
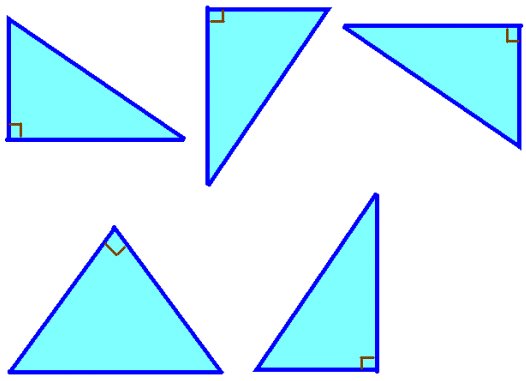
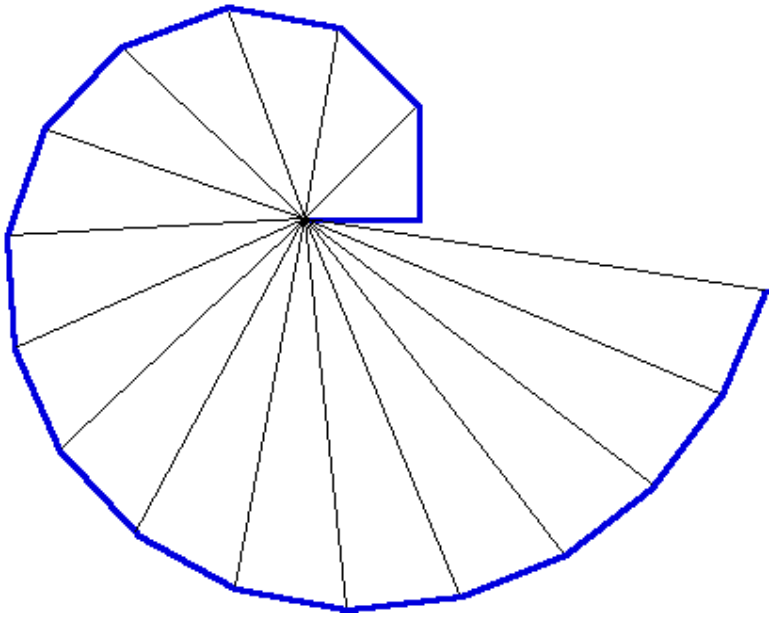
Geometry

Unit 6: Right Triangles









Name_____

Helpful Vocabulary

Word	Definition/Explanation	Examples/Helpful Tips

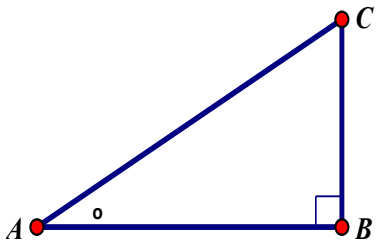
Labelling Parts of a Right Triangle

Given the following triangle

a) Label the hypotenuse "hyp"

b) Label the side opposite <A "opp"

c) Label the side adjacent to <A "adj"



Trigonometric Ratios

Practice

Match the following.

a) _____ Opposite Leg to ∠A

b) _____ Sine Ratio of ∠C

c) _____ Opposite Angle to $\overline{AB}$

d) _____ The Hypotenuse

e) _____ Adjacent Leg to ∠A

f) _____ Tangent Ratio of ∠C

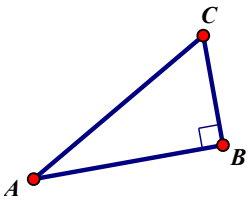
g) _____ Reference angle if $\frac{BC}{AC}$ is the Cosine Ratio.

h) _____ Adjacent Leg to ∠C

i) _____ Cosine Ratio of ∠A

j) _____ The Longest Side

k) _____ Reference angle if $\frac{BC}{AC}$ is the Sine Ratio.



1. ∠A

2. ∠B

3. ∠C

4. $\overline{AB}$

5. $\overline{BC}$

6. $\overline{AC}$

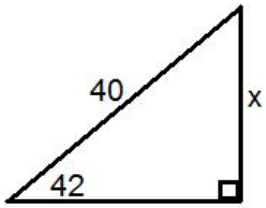
7. $\frac{BC}{AC}$

8. $\frac{AB}{AC}$

9. $\frac{BC}{AB}$

10. $\frac{AB}{BC}$

1.



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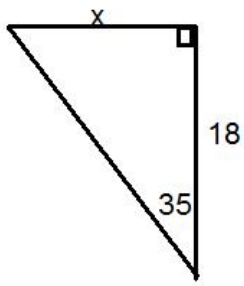

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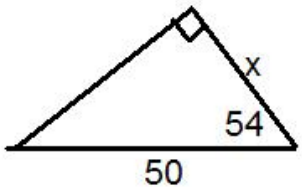

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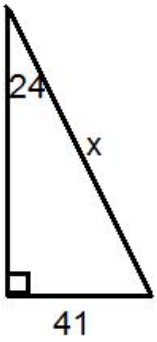

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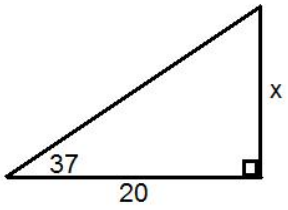

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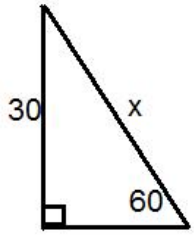

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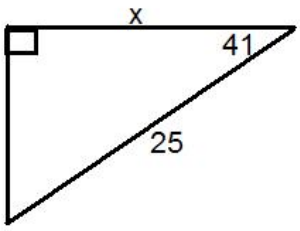

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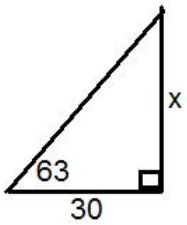

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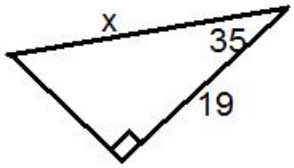

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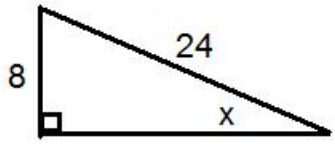

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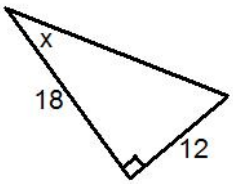

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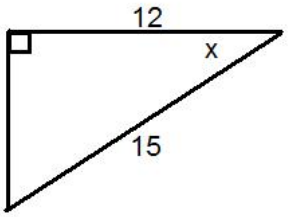

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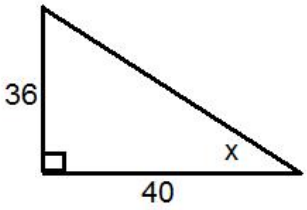

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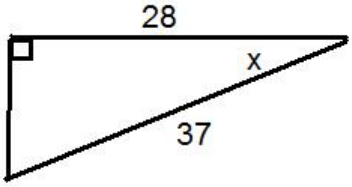

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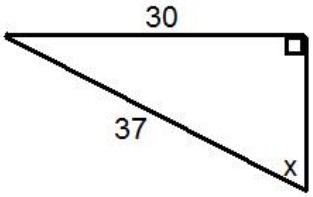

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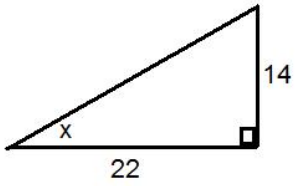

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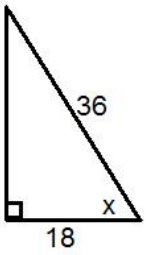

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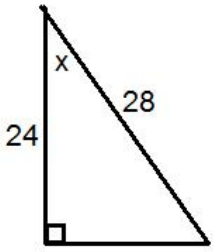

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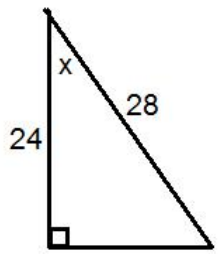

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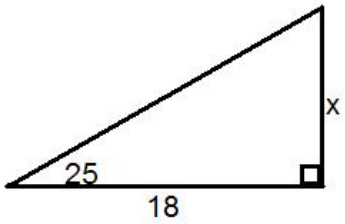

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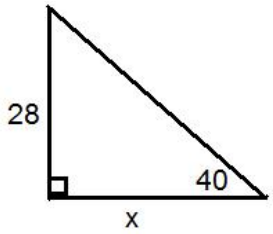

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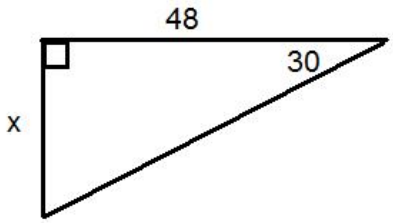

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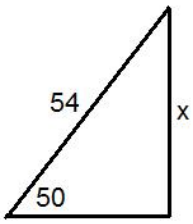

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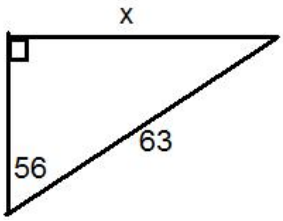

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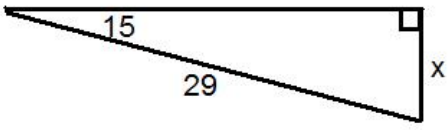

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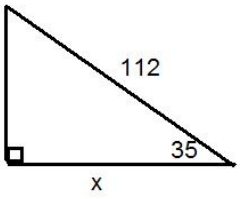

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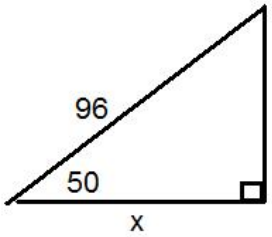

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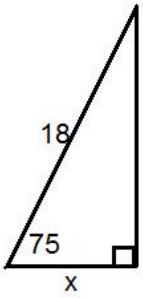

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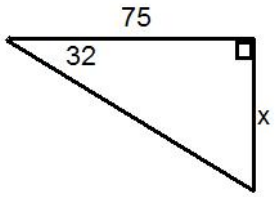

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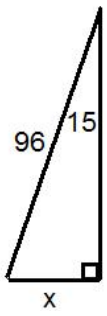

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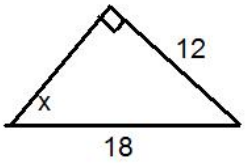

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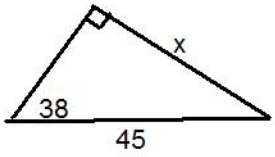

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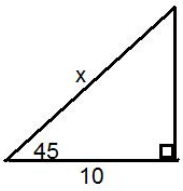

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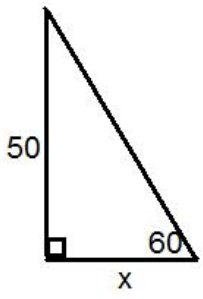

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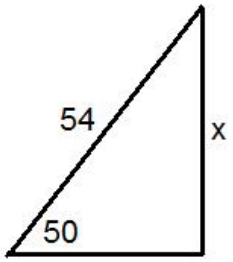

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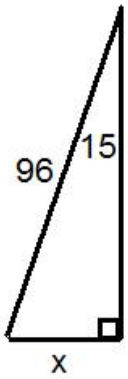

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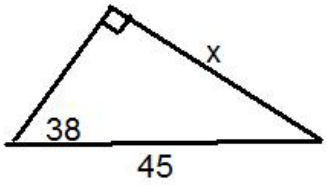

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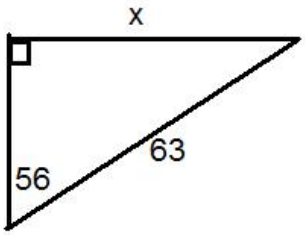

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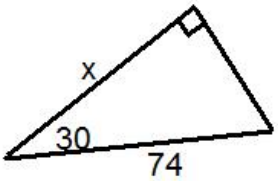

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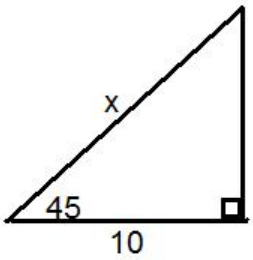

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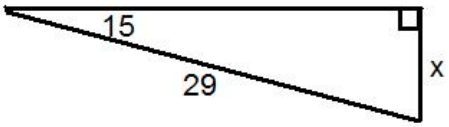

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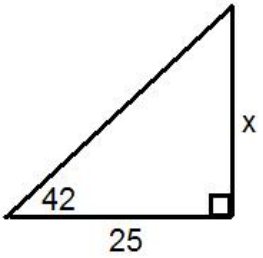

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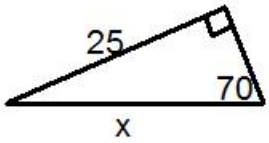

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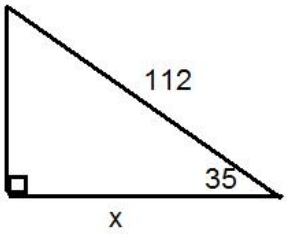

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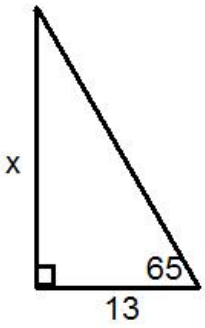

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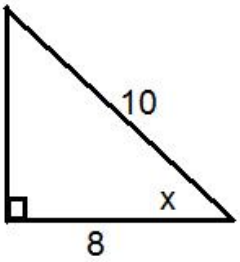

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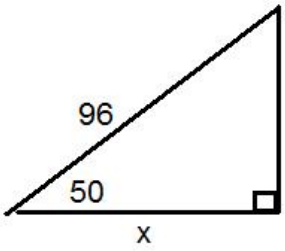

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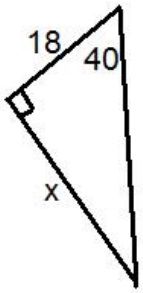

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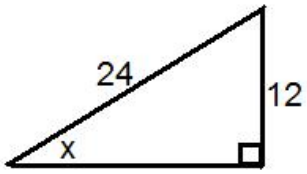

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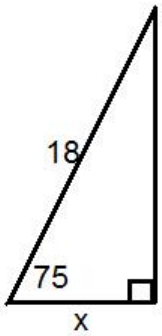

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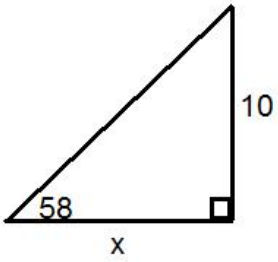

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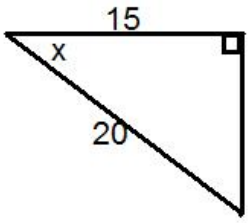

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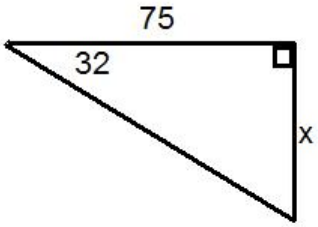

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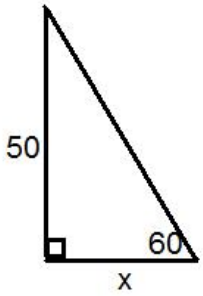
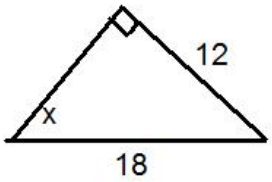
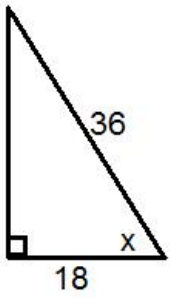


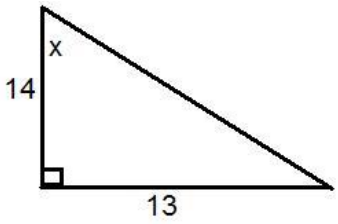
25.



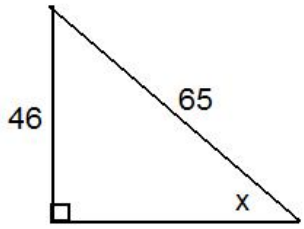
26.



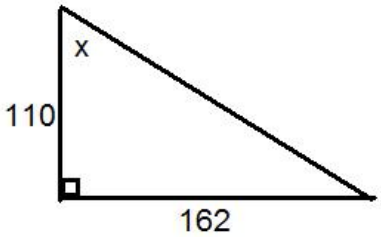
27.



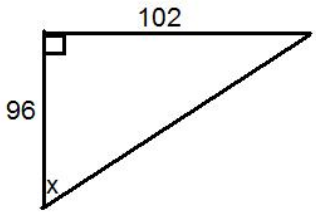
28.



29.



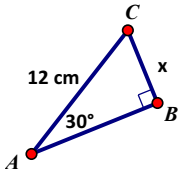
30.



Extra Practice

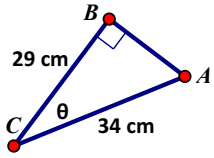
1. Label the sides based of the triangle using the reference angle -- (O) for Opposite, (A) for Adjacent and (H) for Hypotenuse. After you have labeled the triangle, then choose which trigonometric ratio that you would use to solve for the missing info.

a)



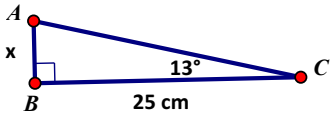
SIN COS TAN

b)



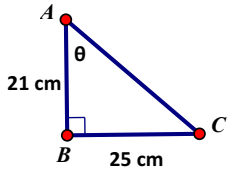
SIN COS TAN

c)



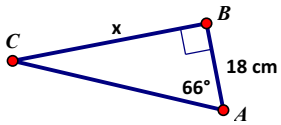
SIN COS TAN

d)

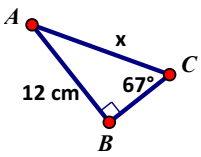


SIN COS TAN

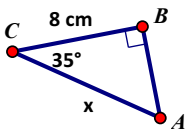
e)



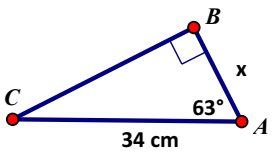
f)



g)



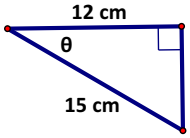
h)



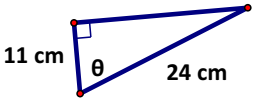
SIN	COS	TAN	SIN	COS	TAN	SIN	COS	TAN	SIN	COS	TAN

2. Solve the angle. (Round all final answers to 2 decimals places)

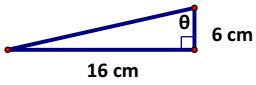
a)



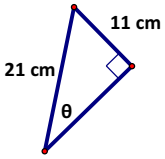
b)



c)



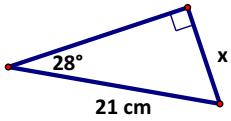
d)



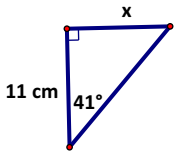
Θ ≈ _____ **Θ ≈ _____** **Θ ≈ _____** **Θ ≈ _____**

3. Solve for the side x. (Round all final answers to 2 decimals places)

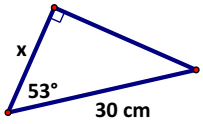
a)



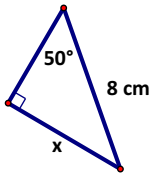
b)



c)



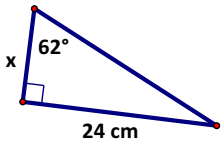
d)



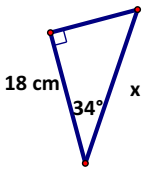
x ≈ _____ **x ≈ _____** **x ≈ _____** **x ≈ _____**

4. Solve for the side x. (Round all final answers to 2 decimals places)

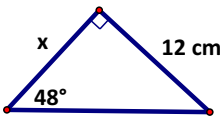
a)



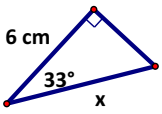
b)



c)



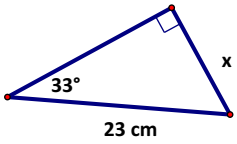
d)



x = _____ **x = _____** **x = _____** **x = _____**

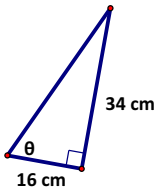
5. Solve for the missing information. (Round all final answers to 2 decimals places)

a)



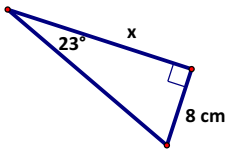
$x \approx$ _____

b)



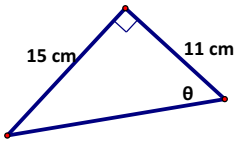
$\Theta =$ _____

c)



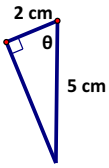
$x \approx$ _____

d)



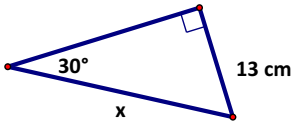
$\Theta =$ _____

e)



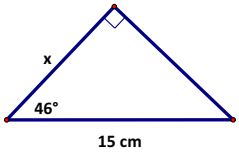
$\Theta =$ _____

f)



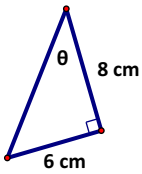
$x \approx$ _____

g)



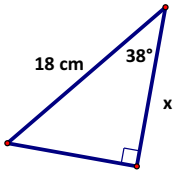
$x \approx$ _____

h)



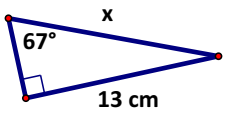
$\Theta =$ _____

i)



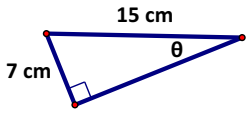
$x \approx$ _____

j)



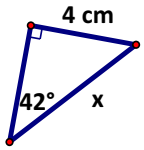
$x \approx$ _____

k)



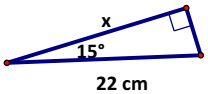
$\Theta =$ _____

l)



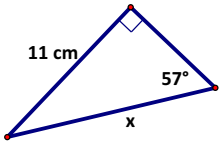
$x \approx$ _____

m)



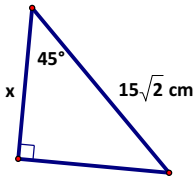
$x \approx$ _____

n)



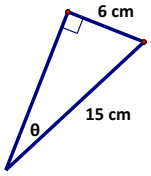
$x \approx$ _____

o)



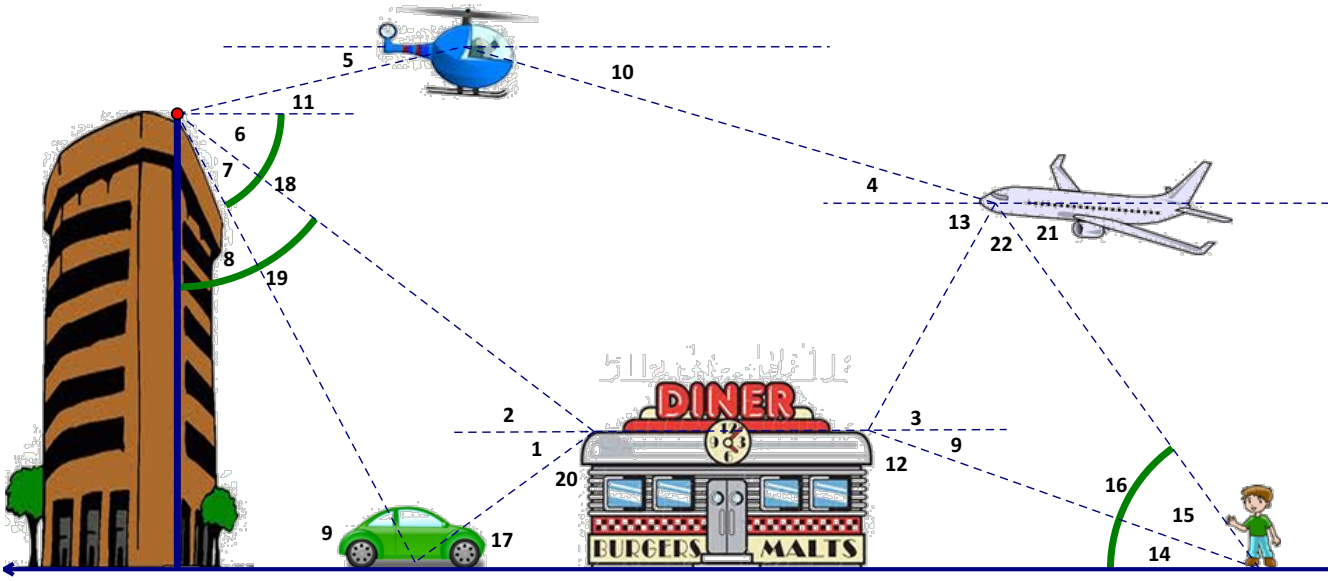
$x \approx$ _____

p)



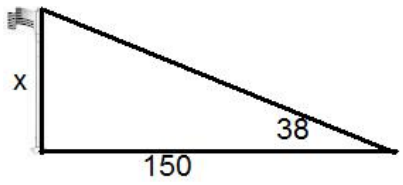
$\Theta =$ _____

Angle of Elevation vs. Angle of Depression

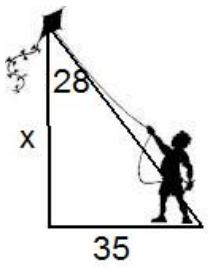


a) the angle of elevation from the **CAR** to the top of the **DINER** is _____.
b) the angle of depression from the top of the **TALL BUILDING** to the **DINER** is _____.
c) the angle of elevation from the **PLANE** to the **HELICOPTER** is _____.
d) the angle of depression from the top of the **DINER** to the **BOY** is _____.
e) the angle of depression from the **HELICOPTER** to the **PLANE** is _____.
f) the angle of depression from the **PLANE** to the top of the **DINER** is _____.
g) the angle of elevation from the **BOY** to the top of the **DINER** is _____.
h) the angle of depression from the top of the **TALL BUILDING** to the top of the **CAR** is _____.
i) the angle of depression from the **HELICOPTER** to the top of the **TALL BUILDING** is _____.
j) the angle of elevation from the top of the **DINER** to the top of the **TALL BUILDING** is _____.
k) the angle of elevation from the top of the **DINER** to the **PLANE** is _____.
l) the angle of depression from the top of the **DINER** to the **CAR** is _____.
m) the angle of elevation from the **BOY** to the front of the **PLANE** is _____.
n) the angle of elevation from the **CAR** to the top of the **DINER** is _____.
o) the angle of depression from the front of the **PLANE** to the **BOY** is _____.
p) the angle of elevation from the **TALL BUILDING** to the **HELICOPTER** is _____.

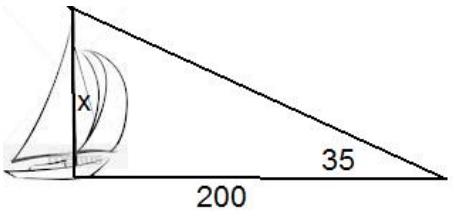
1.


x
38
150

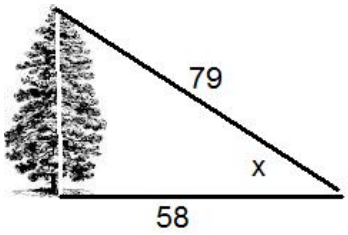
2.


28
x
35

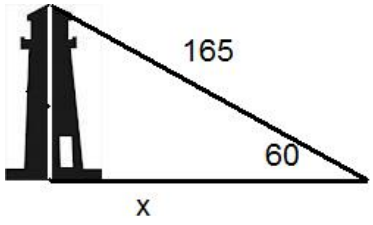
3.


x
35
200

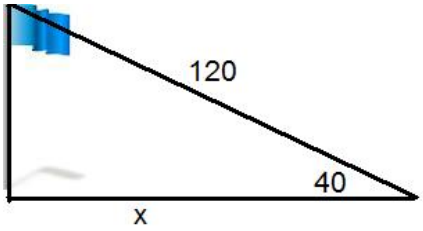
4.


79
x
58

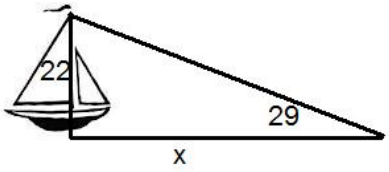
5.


165
60
x

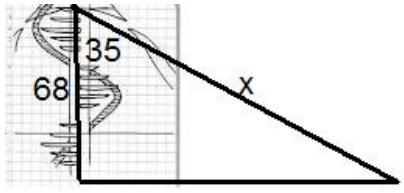
6.


120
40
x

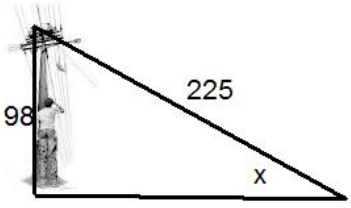
7.


22
29
x

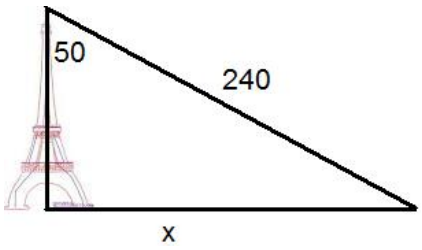
8.


35
68
x

9.


225
98
x

10.



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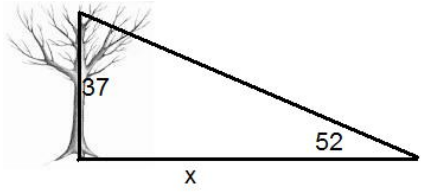

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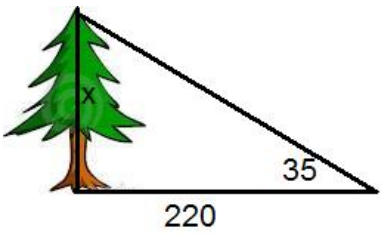

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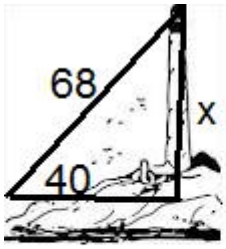

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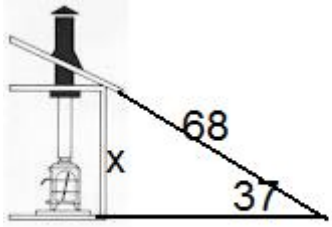

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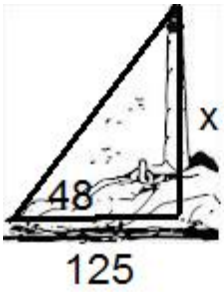

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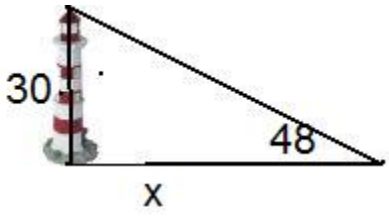

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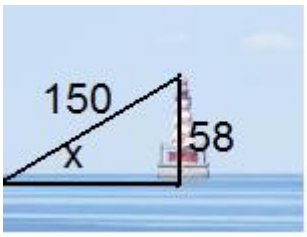

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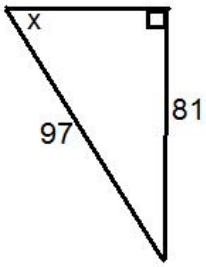
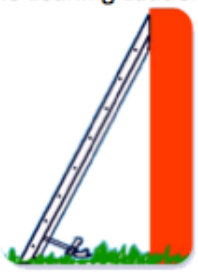


Circle (or Draw) the side or angle that is represented by the description:

a) The Leaning Ladder

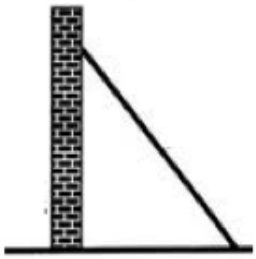


Height on the wall that the ladder reaches.

b) The Leaning Ladder

The distance from the foot of the ladder to the wall.

c) The Leaning Ladder



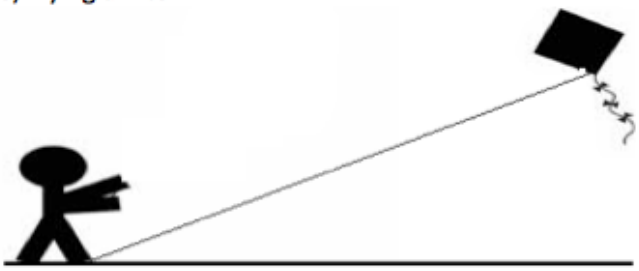
The angle the ladder forms with the wall.

d) The Shadow

The length of his shadow.

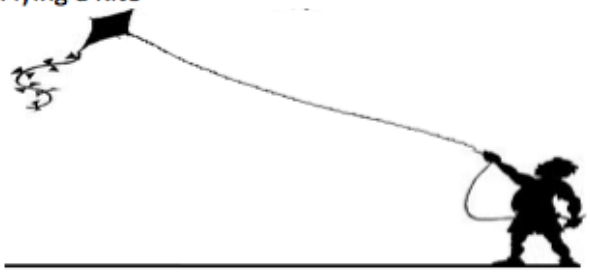
Circle (or Draw) the side or angle that is represented by the description:

e) Flying a Kite



The length of the string.

f) Flying a Kite

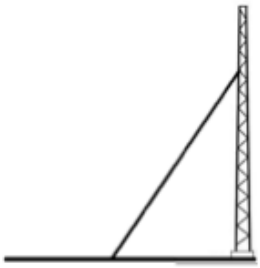


The height of the kite.

g) The Support Guy Wire

The distance from the base of the tree to where the guy wire is fastened to the ground.

h) The Support Guy Wire

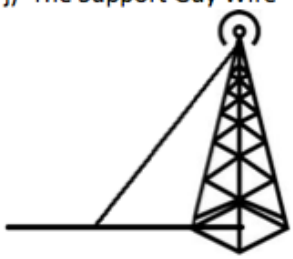


The angle between the antenna and the guy wire.

i) The Support Guy Wire

The height of where the guy wire is fastened to the antenna.

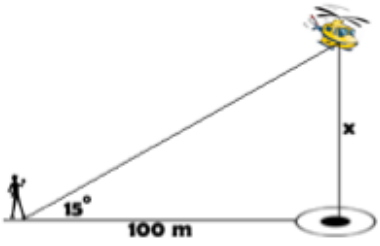
j) The Support Guy Wire



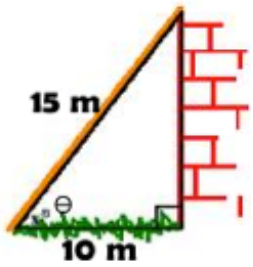
The angle formed between the wire and the ground.

Practice Problems

b) A helicopter is hovering over a landing pad 100 m from where you are standing. The helicopter's angle of elevation with the ground is 15°. What is the altitude of the helicopter?



d) A 15 m pole is leaning against a wall. The foot of the pole is 10 m from the wall. Find the angle that the pole makes with the ground.



a) A young boy lets out 30 ft of string on his kite. If the angle of elevation from the boy to his kite is 27°, how high is the kite?

DIAGRAM

b) A 20 ft ladder leans against a wall so that it can reach a window 18 ft off the ground. What is the angle formed at the foot of the ladder?

DIAGRAM

c) To support a young tree, Jack attaches a guy wire from the ground to the tree. The wire is attached to the tree 4 ft above the ground. If the angle formed between the wire and the tree is 70°, what is the length of the wire?

DIAGRAM

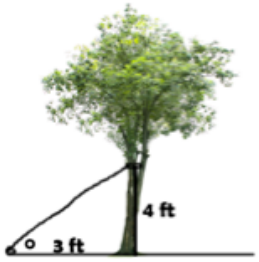
d) A helicopter is directly over a landing pad. If Billy is 110 ft from the landing pad, and looks up to see the helicopter at 65° to see it. How high is the helicopter?

DIAGRAM

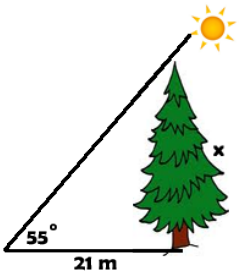
<u>An Extra Step and a Self-Assessing Exit Ticket</u>

a) How long is the guy wire?

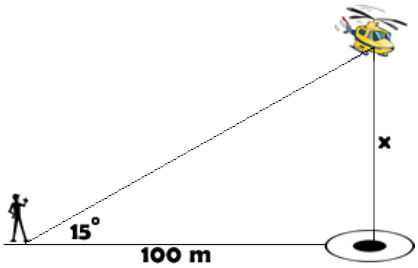
b) What is the angle formed between the guy wire and the ground?



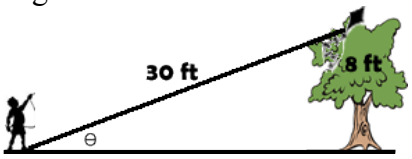
1. A tree casts a shadow 21 m long. The angle of elevation of the sun is 55°. What is the height of the tree?



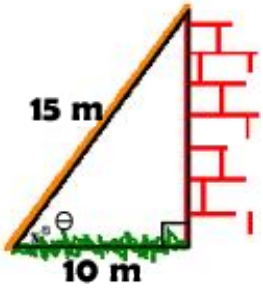
2. A helicopter is hovering over a landing pad 100 m from where you are standing. The helicopter's angle of elevation with the ground is 15°. What is the altitude of the helicopter?



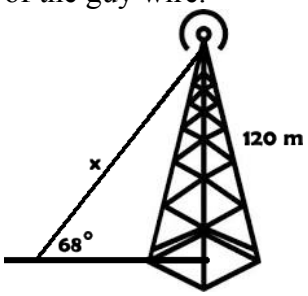
3. You are flying a kite and have let out 30 ft of string but it got caught in a 8 ft tree. What is the angle of elevation to the location of the kite?



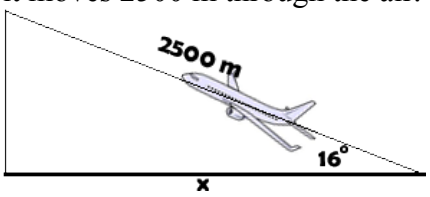
4. A 15 m pole is leaning against a wall. The foot of the pole is 10 m from the wall. Find the angle that the pole makes with the ground.



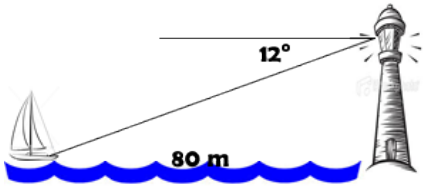
5. A guy wire reaches from the top of a 120 m television transmitter tower to the ground. The wire makes a 68° angle with the ground. Find the length of the guy wire.



6. An airplane climbs at an angle of 16° with the ground. Find the ground distance the plane travels as it moves 2500 m through the air.

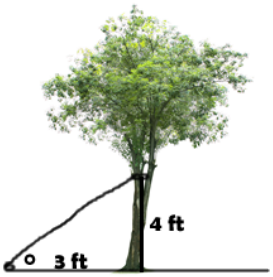


7. A lighthouse operator sights a sailboat at an angle of depression of 12°. If the sailboat is 80 m away, how tall is the lighthouse?



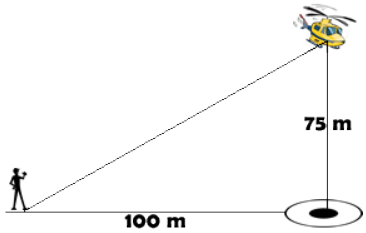
8. a) How long is the guy wire?

b) What is the angle formed between the guy wire and the ground?



9. a) What is the length of the line of sight from the man to the helicopter?

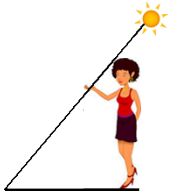
What is the angle of elevation from the man to the helicopter?



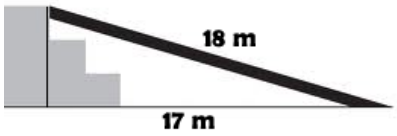
10. a) A field has a length of 12 m and a diagonal of 13 m. What is the width?

b) What is the angle formed between the diagonal and the width of the field?

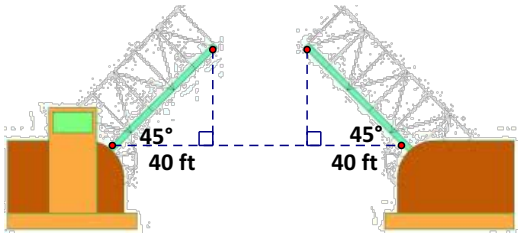
11. a) A 5 ft 11 inch women casts 3 ft shadow.
b) What is the angle that the sun's rays make with the ground?



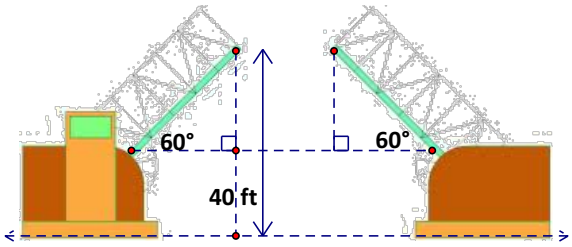
12. a) A ramp is 18 m long. If the horizontal distance of the ramp is 17m, what is the vertical distance?
b) What is the angle of elevation of the ramp?



13. a) Using the drawbridge diagram, determine the distance from one side to the other. (exact answer)



14. Now that you know the distance from side to side, determine how high the drawbridge would be if the angle of elevation was 60°.(exact answer)



Extra Practice

Draw a diagram, label, and solve for the missing part:

1. Find to the nearest meter the height of a building if its shadow is 37m long when the angle of elevation of the sun contains 42°.

2. A 5-foot wire attached to the top of a tent pole reaches a stake in the ground 3 feet from the foot of the pole. Find to the nearest degree the measure of the angle made by the wire with the ground.

3. While flying a kite, Doris let out 400 feet of string. Assuming that the string is stretched taut and it makes an angle of 48° with the ground, find to the nearest foot how high the kite is.

4. The angle of elevation from a ship to the top of a 50m lighthouse on the coast measures 13°. How far from the coast is the ship?

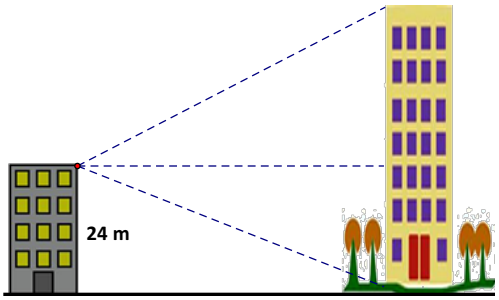
5. A ladder leaning against a wall. The foot of the ladder is 6.5 feet from the wall. The ladder makes an angle of 74° with the level ground. How high, to the nearest foot, on the wall does the ladder reach?

1. Find to the nearest meter the height of a building if its shadow is 67m long when the angle of elevation of the sun contains 26°.	2. A 8-foot wire attached to the top of a tent pole reaches a stake in the ground 5 feet from the foot of the pole. Find to the nearest degree the measure of the angle made by the wire with the ground.
3. While flying a kite, Doris let out 250 feet of string. Assuming that the string is stretched taut and it makes an angle of 54° with the ground, find to the nearest foot how high the kite is.	4. In rectangle ABCD, a diagonal AC is drawn. If $m\angle BAC = 62°$ and BC is 20, find to the nearest integer the length of AB and AC.
5. The angle of elevation from a ship to the top of a 48m lighthouse on the coast measures 21°. How far from the coast is the ship?	6. A kite is flying at the end of a 136m string that is straight. The string makes an angle of 52° with the ground. How high above the ground is the kite?
7. A tree casts a 54m shadow when the angle of elevation of the sun measures 36°. How tall is the tree?	8. A ramp is 360m long. It rises a vertical distance of 48m. Fine the measure of its angle of elevation.

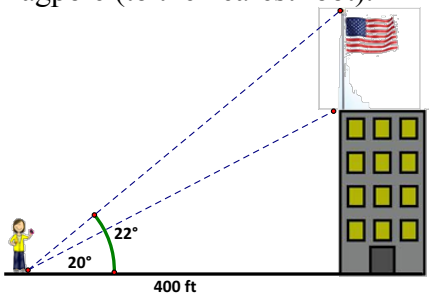
9. Each step of a stairway rises 19cm for a tread width of 36cm. What angle does the stairway make with the floor?	10. A 42m ladder makes an angle of 55° with the ground as it leans against a building. At what height does it touch the building?
11. A plane is flying at an altitude 0f 13,500m. The angle of elevation from an object on the ground to the plane measures 39°. How far is the object from the plane.	12. A cliff is 230m above sea level. From a cliff and angle of depression of a boat in the sea measures 9°. How far is the boat from the base of the cliff?
13. A wooden beam 8m long leans against a wall and makes an angle of 68° with the ground. Find the nearest tenth of a meter how high up the wall the beam reaches?	14. A boy flying a kite lets out 286feet of string, which makes an angle of 43° with the ground. Assuming that the string is stretched taut, find the nearest foot, how high the kite is above the ground?
15. A ladder that leans against a building makes an angles of 83° with the ground and reaches a point on the building 6.4m above the ground. Find the nearest meter the length of the ladder.	16. From an airplane that is flying at an altitude of 26,300feet, the angle of depression of an airport ground signal measures 32°. Find to the nearest hundred feet the distance between the airplane and the airport signal.

17. A 23 foot pole that is leaning against a wall reaches a point that is 17 feet above the ground. Find to the nearest degree the number of degrees contained in the angle that the pole makes with the ground.	18. To reach the top of a hill that is 3 kilometer high, one must travel 9 kilometers up a straight road that leads to the top. Find to the nearest degree the number of degrees contained in the angle that the road makes with the horizontal?
19. A point on the ground 47 m from the foot of a tree, the angle of elevation of the top of the tree contains 36°. Find the height of the tree to the nearest meter.	20. A ladder leaning against a wall. The foot of the ladder is 8.2 feet from the wall. The ladder makes an angle of 93° with the level ground. How high, to the nearest foot, on the wall does the ladder reach?
21. A boy visiting New York City views the Empire State Building from a point on the ground, which is 865 feet from the foot of the building. The angle of elevation contains 51°. Find the height of the building to the nearest foot.	22. Find to the nearest meter the height of a building that cast a shadow of 12m long when the angle of elevation of the sun contains 41°.

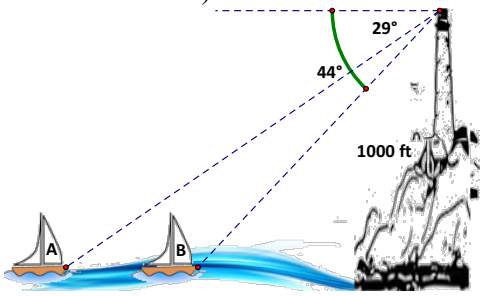
1. From an apartment window 24 m above the ground, the angle of depression of the base of a nearby building is 38° and the angle of elevation of the top is 63°. Find the height of the nearby building (to the nearest meter).



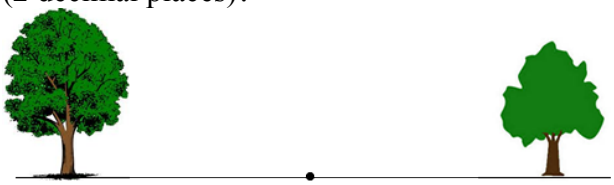
2. A flagpole is at the top of a building. 400 ft from the base of the building, the angle of elevation of the top of the pole is 22° and the angle of elevation of the bottom of the pole is 20°. Determine the length of the flagpole (to the nearest foot).



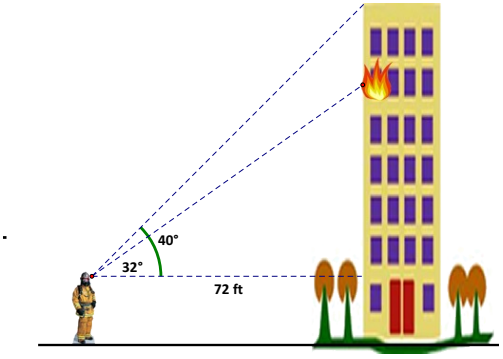
3. From a lighthouse 1000 ft above sea level, the angle of depression to a boat (A) is 29°. A little bit later the boat has moved closer to the shore (B) and the angle of depression measures 44°. How far (to the nearest foot) has the boat moved in that time?



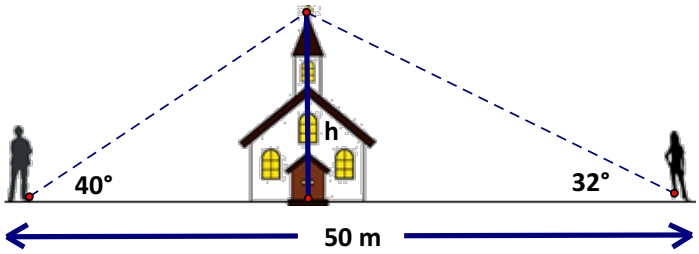
4. Two trees are 100 m apart. From the exact middle between them, the angles of elevation of their tops are 12° and 16°. How much taller is one tree than the other (2 decimal places)?



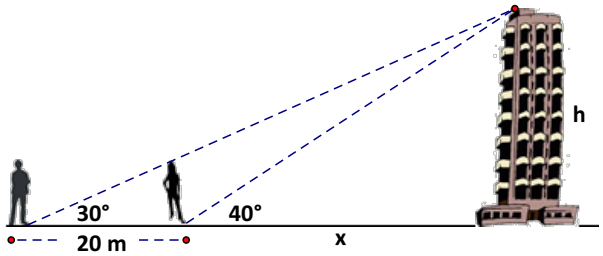
5. A firefighter on the ground sees the fire break through a window. The angle of elevation to the windowsill is 32°. The angle of elevation to the top of the building is 40°. If the firefighter is 72 ft from the building, what is the distance from the roof to the window sill?



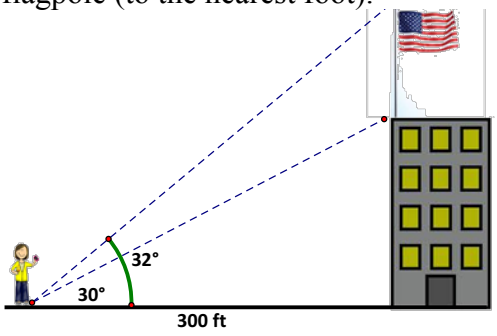
6. Jack and Jill are on either side of the church and 50 m apart. Jack sees the top of the steeple at 40° and Jill sees the top of the steeple at 32°. How high is the steeple?



7. Jack and Jill are 20 m apart. Jack sees the top of the building at 30° and Jill sees the top of the building at 40°. What is the height of building?



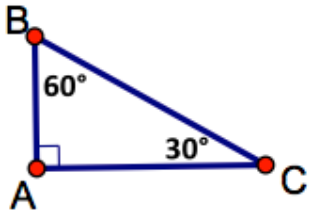
8. A flagpole is at the top of a building. 300 ft from the base of the building, the angle of elevation of the top of the pole is 32° and the angle of elevation of the bottom of the pole is 30°. Determine the length of the flagpole (to the nearest foot).



Co-Functions

Do Now:

1) In the following triangle, AB = 1.
Determine the lengths of, AC and BC.

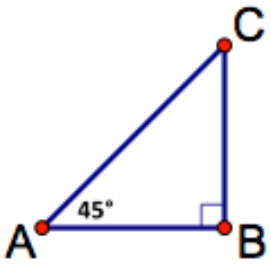


2) Write the equation for the sin(30):

3) Write the equations for the cos(60):

Let's try it again with another triangle!

1) In the following triangle, AB = 1.
Determine the lengths of, BC and AC.



2) Write the equation for the sin(45):

3) Write the equations for the cos(45):

Co-Functions

Sine and **Co**sine are **co**-functions

Determine the value of the following (4 decimal places):

sin(10) =	cos(80) =
sin(15) =	cos(75) =
sin(20) =	cos(70) =
sin(25) =	cos(65) =
sin(80) =	cos(10) =

Compare the values. Are there any values that are the same? If so, what do you notice about the relationship between the angle measures?

1) Solve the following:

a) sin42° = cos _____°

b) cos12° = sin _____°

c) sin45° = cos _____°

2) Solve for x:

a) sin(x – 5) = cos(35)

b) sin(2x – 17) = cos(x – 4)

c) sin $(\frac{3}{4}x)$ = cos $(\frac{1}{4}x)$

3) If sinA = ⅔, then cosA is what?

4) If sin(6A) = cos(9A), then the measure of <A is what?

5) If cos(2x – 1) = sin(3x + 6), then what is the value of x?

<u>Practice</u>

1) Solve the following:

d) cos 0° = sin _____°

e) cos 65° = sin _____°

f) sin 78.5° = cos _____°

2) Solve for x:

d) sin(x)= cos(x)

e) sin (5x – 22) = cos (x – 10)

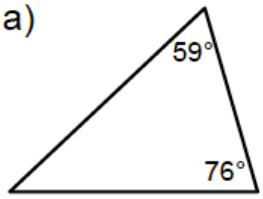
f) sin $(\frac{3}{4}x-3)$= cos (66)

Special Right Triangles

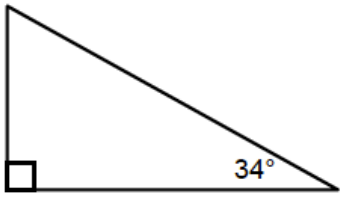
Intro

1) Find the missing angle of the following triangles:

a)

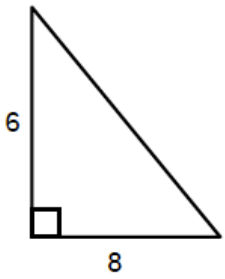


b)

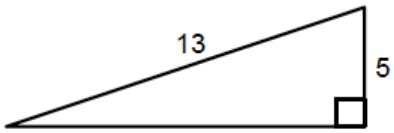


2) Find the missing side of the following triangles:
(hint: what kind of triangles are given?)

a)

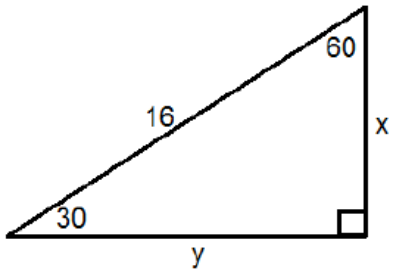


b)

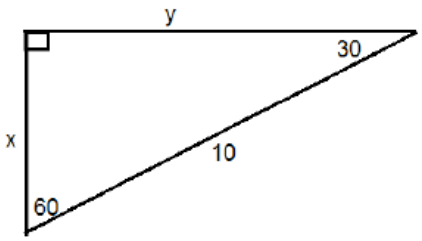


2 Types of Special Right Triangles

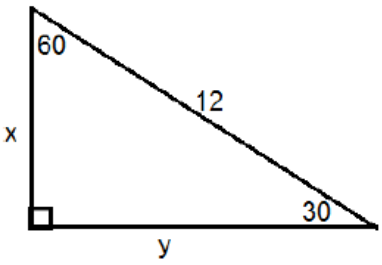
1.



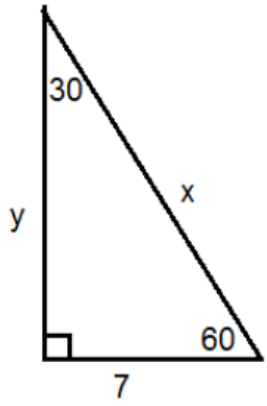
2.



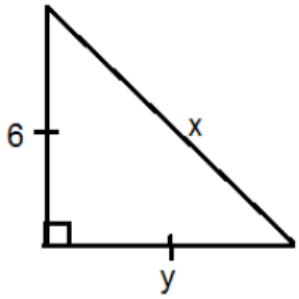
3.



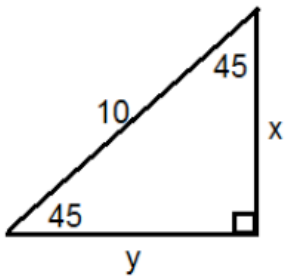
4.



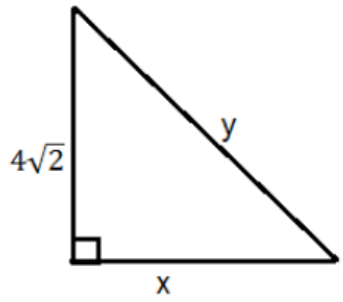
5.



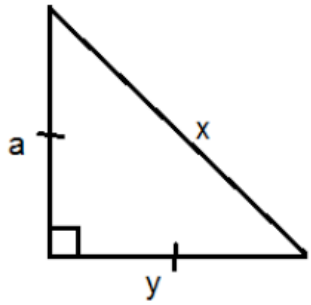
6.



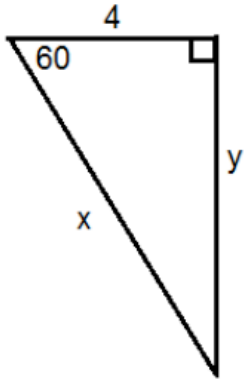
7.



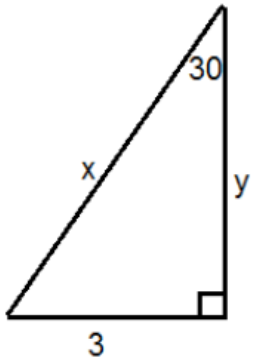
8.



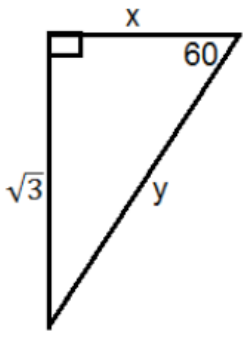
9.



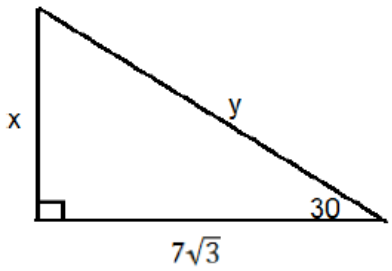
10.



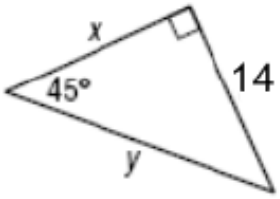
11.

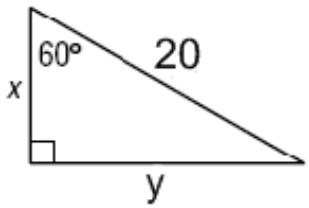


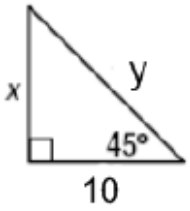
12.

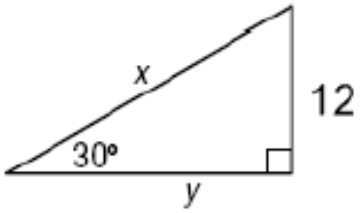


More Practice

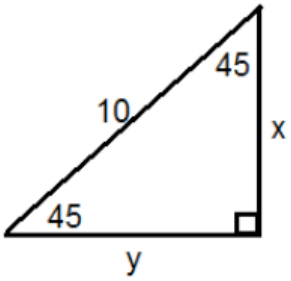


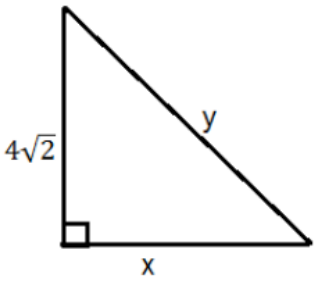


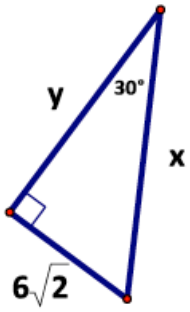


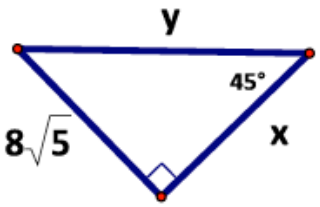


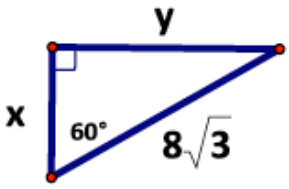
Multiplying and Diving Radicals

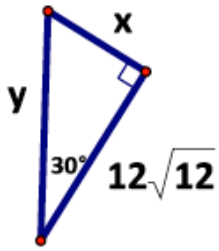

45
10
x
45
y


y
$4\sqrt{2}$
x


y
30°
x
$6\sqrt{2}$

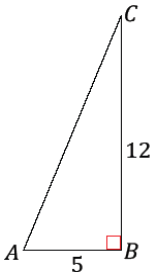

y
45°
$8\sqrt{5}$
x

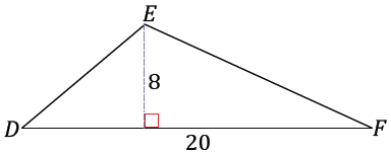

y
x
60°
$8\sqrt{3}$

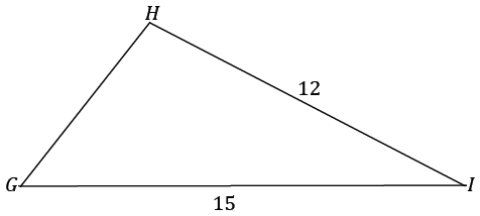

x
y
30°
$12\sqrt{12}$

Do Now

Three triangles are given below. Determine the areas for each triangle, if possible. If it is not possible to find the area with the provided information, describe what is needed in order to determine the area.





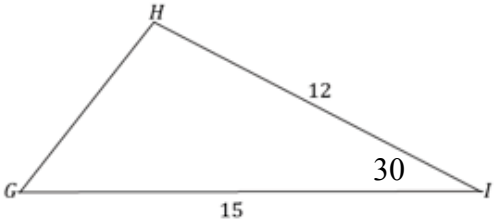


Finding the Area of a Triangle without a Given Height

To find the area of a triangle when you are not given the height, you must:

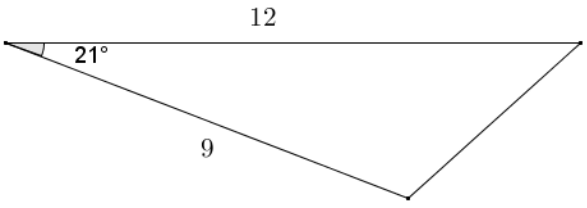
1)

2)

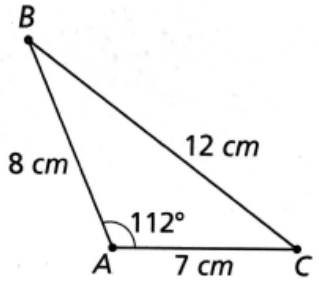


Examples/Practice

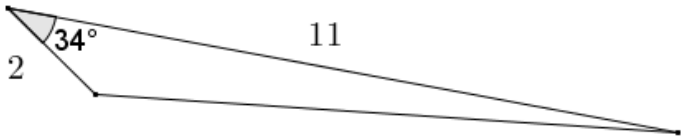
1. Find the area of the accompanying triangle. Round to the nearest tenth.



2. Determine the area of the accompanying triangle. Round your answer to the nearest hundredth.



3. Find the area of the accompanying triangle. Round your answer to the nearest tenth.

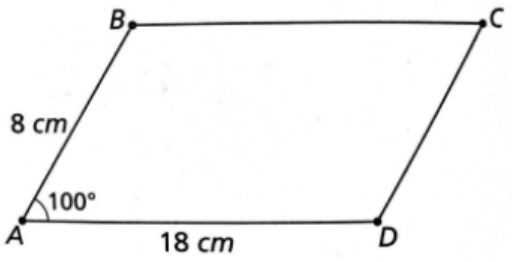


4. A landscape designer is designing a flower garden for a triangular area that is bounded on two sides by the client's house and driveway. The length of the edges of the garden along the house and driveway are 18 ft. and 8 ft., respectively, and the edges come together at an angle of 80°. Draw a diagram, and then find the area of the garden to the nearest square foot.

5. In ΔABC, AB = 15, BC = 20, and $m\angle B = 63^{\circ}$. Determine the area of the triangle. Round to the nearest tenth.

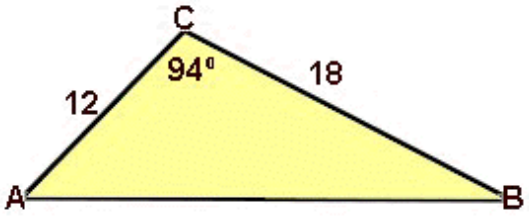
Take it a step further…

6. An angle of a parallelogram measures 100°. The lengths of its sides are 8 and 18. Determine the area of the parallelogram. Round your answer to the nearest hundredth.

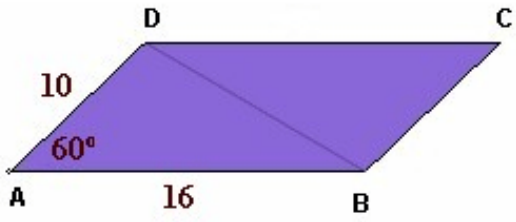


Homework

1. Given the triangle at the right, find its area. Express the area to the nearest thousandth.



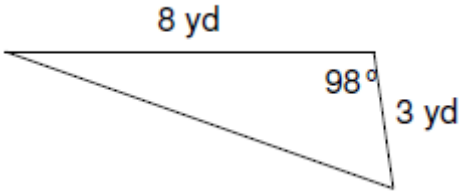
2. Given the parallelogram at the right, find its EXACT area. Round your answer to the nearest hundredth



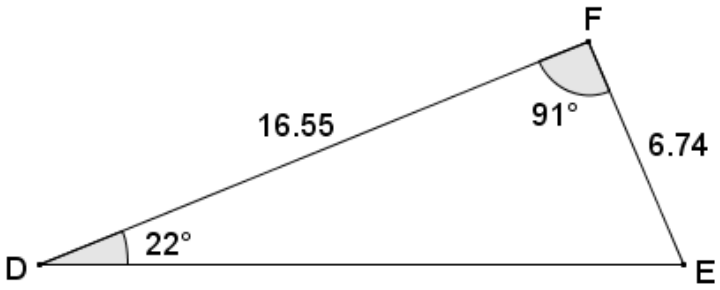
3. In an isoscelesΔ, the two equal sides each measure 8 meters, and they include an angle of 27°. Find the area of the isosceles triangle, to the nearest square meter.

4. In ΔPQR, $PQ = 12$, $PR = 3$, and $m\angle P = 78°$. Find the area of ΔPQR, to the nearest tenth of a square unit.

5. Find the area of the triangle. Round your answer to the nearest tenth

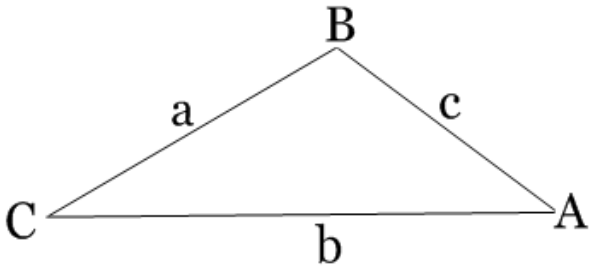


Do Now



Find the length of side *DE* in the triangle below:

Law of Sines

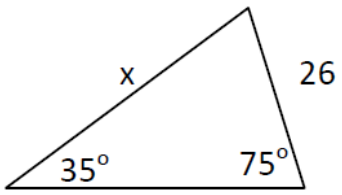


$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

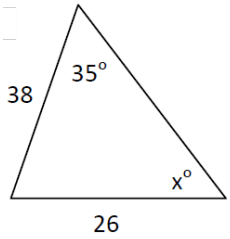
Examples

1. Find the value of *x*, to the nearest hundredth.

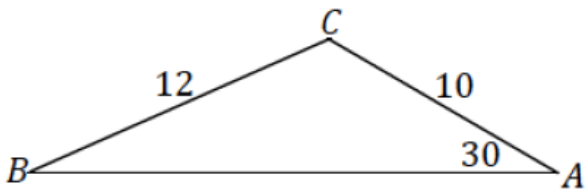
a.



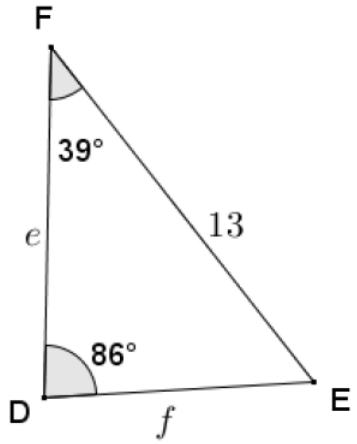
b.



2. Given ΔABC, find $m\angle B$.



3. Given ΔDEF, find the lengths of sides e and f to the *nearest hundredth.*



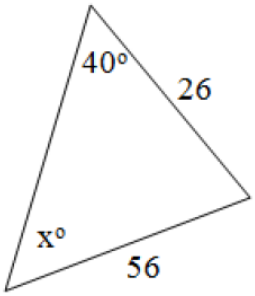
4. Find the lengths of the missing sides of ΔRST if $m<R = 40°$, $m<S = 55°$ and $r = 6$. Round your answers to the nearest hundredth.

5. In triangle ABC, $\sin A = 0.8$, $\sin B = 0.3$, and $a = 24$. Find the length of side b.

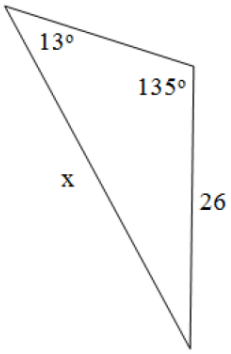
Homework

Directions: Solve for *x*. Round to the nearest tenth

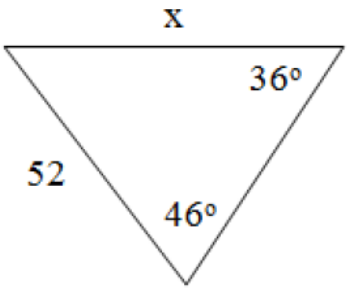
6.



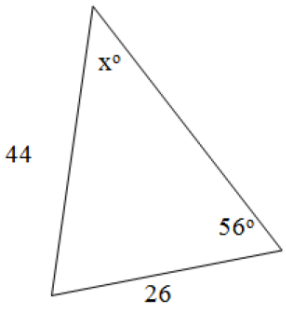
7.



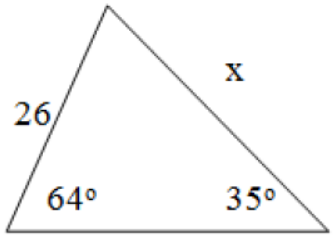
8.



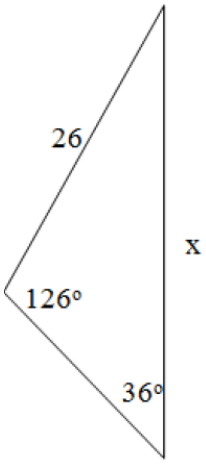
9.



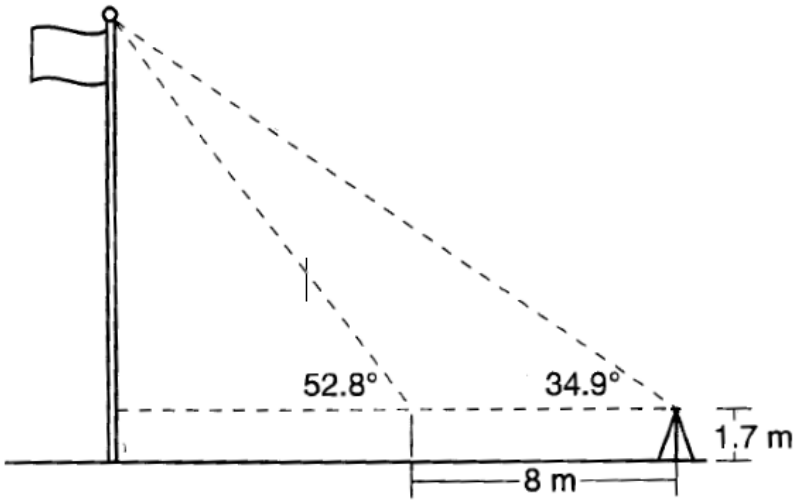
10.



11.



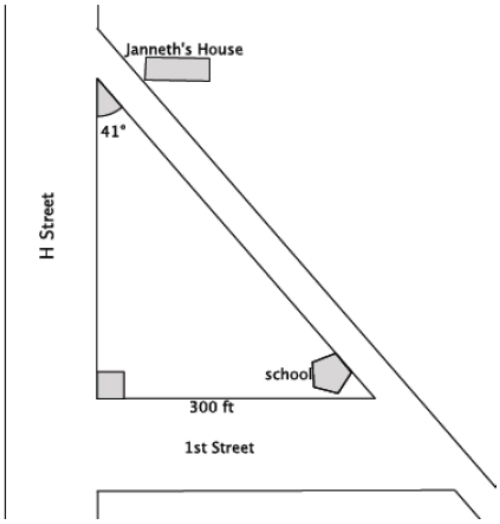
12. Cathy wants to determine the height of the flagpole shown in the diagram below. She uses a survey instrument to measure the angle of elevation to the top of the flagpole, and determines it to be 34.9°. She walks 8 meters closer and determines the new measure of the angle of elevation to be 52.8°. At each measurement, the survey instrument is 1. 7 meters above the ground.



Determine and state, to the *nearest tenth of a meter,* the height of the flagpole.

Do Now

The bus drops you off at the corner of H Street and 1st Street, approximately **300 ft.** from school. You plan to walk to your friend Janette's house after school to work on a project. Aproximately how many feet will you have to walk from school to Janette's house? Round your answer to the nearest foot.

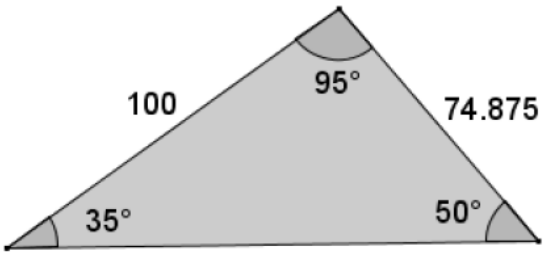


Classwork/Notes

1. Joanna borrowed some tools from a friend so that she could precisely, but not exactly, measure the corner space in her backyard to plant some vegetables. She wants to build a fence to prevent her dog from digging up the seeds that she plants. Joanna returned the tools to her friend before making the most important measurement: the one that would give the length of the fence! ***See the diagram below to help you with this question.***

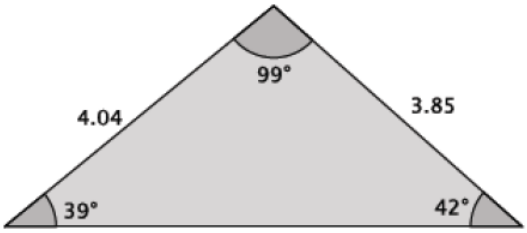
a. Joanna decided that she could just use the Pythagorean theorem to find the length of the fence she would need. Is the Pythagorean theorem applicable in this situation? Explain.

b. Use another method to solve for the length of the fence to the nearest foot.

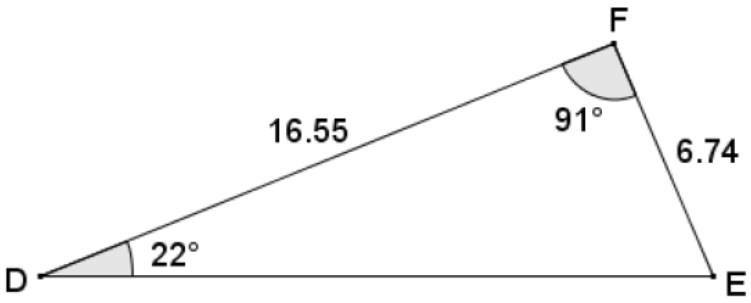


2. The measurements of the triangle given are rounded to the nearest hundredth.

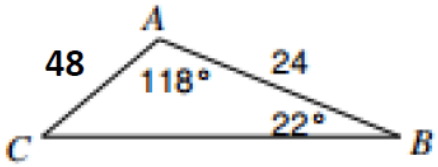
Calculate the missing side length to the nearest hundredth.



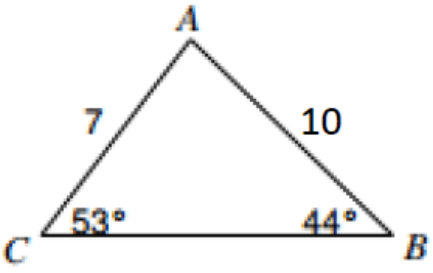
3. Given triangle *DEF*, find ***DE*** to the nearest hundredth.



4. Find the length of *CB* to the nearest tenth.

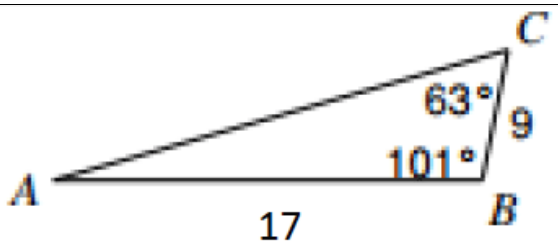


5. Find the length of *CB* to the nearest hundredth.

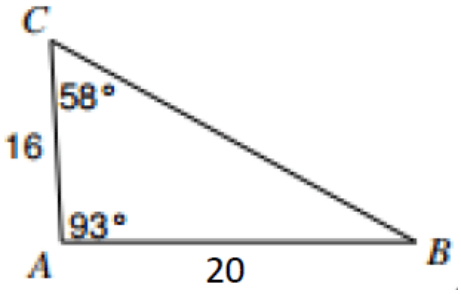


Homework

6. Find the length of *CA* to the nearest thousandth.



7. Find the length of *CB* to the nearest tenth.



8. Find the length of *AC* to the nearest tenth.

9. Find the length of *CB* to the nearest tenth.